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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,561	03/19/2001	Domenico Sanfilippo	204698US0X	6256

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1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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LANGEL, WAYNE A

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

810561

Applicant(s)

Sanfilippo et al

Examiner

Langel

Group Art Unit

1754

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

☒ Responsive to communication(s) filed on 6-19-03

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

☒ Claim(s) 3-21, 23, 24 and 26-33 is/are pending in the application.

Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 3-21, 23, 24 and 26-33 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some\* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other \_\_\_\_\_

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The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-12, 18-21, 23, 24 and 26-33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Werth '270 (newly cited) in view of Cole. Werth discloses the process recited in applicant's claims, except for the use as hydrocarbon as a reductant. (See column 7, line 25 - column 8, line 37.) However Werth '270 teaches at column 7, lines 26-28 that one method of regeneration comprises reacting the spent metal oxide with a reducing gas. Accordingly Werth '270 implies that any known reducing gas could be employed in the regeneration step. Cole teaches at column 10, lines 31 and 32 that hydrocarbons such as natural gas constitute reducing gases. It would be prima facie obvious from Cole to employ methane as the reducing gas in the process of Werth '270, since Cole teaches that methane is a reducing gas, and Werth '270 teaches that any reducing gas can be employed to reduce the spent metal oxide. There is no evidence on record of unexpected results which would emanate from the use

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of methane as the reducing gas in the process of Werth '270, as opposed to the other reducing gases specifically disclosed therein since it would not be unexpected that carbon dioxide would be formed by a reaction between a metal oxide and methane.

Claims 3-21, 23, 24 and 26-33 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 26, line 7, there is no antecedent basis for "the reducing solid". The word "reducing" should be changed to --reduced-- to avoid this rejection. In claim 18, the recitation of "can be used as such" renders the scope of the claim vague and indefinite.

Claim 20 is objected to under 37 CFR 1.75(b) as being a substantial duplicate of claim 26.

Werth '426 and Werth '902 are made of record for disclosing methods for producing hydrogen by reacting water with iron, followed by reducing the resulting iron oxide with a reducing gas.

This application apparently discloses allowable subject matter (i.e., regarding the subject matter of claims 13-17).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (703) 308-0248. The examiner

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can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for this Group is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

WAL:cdc

August 5, 2003

  
WAYNE A. LANGEL  
PRIMARY EXAMINER